

CLAIM AMENDMENTS

1. (currently amended) An electron source for an X-ray scanner comprising:
at least one electron emitter in a first plane;
a plurality of extraction elements in a second plane, wherein the first plane and second plane are substantially parallel and separated by a contiguous space, wherein said extraction elements are substantially perpendicular to the at least one electron emitter, and wherein a space between two adjacent extraction elements and said at least one electron emitter define a source region; ~~and~~
a plurality of elongate focusing elements in a third plane, wherein the third plane and second plane are substantially parallel and separated by a contiguous space defining a second region and wherein said focusing elements focus beams of electrons after they have passed the extraction elements; and
a controller that applies an electrical potential to certain of said plurality of extraction elements wherein said application of the electrical potential causes electrons to be moved from a first source region to a second region.
2. (canceled)
3. (previously presented) An electron source according to claim 1 wherein the electron emitter comprises an elongate emitter member.
4. (previously presented) An electron source according to claim 1 wherein the controller is arranged to connect each of the plurality of extraction elements to either an extracting electrical potential which is positive with respect to the electron emitter or an inhibiting electrical potential which is negative with respect to the electron emitter.
5. (previously presented) An electron source according to claim 4 wherein the controller is arranged to connect the extraction elements to the extracting potential successively in adjacent pairs so as to direct a beam of electrons between each pair of extraction elements.
6. (previously presented) An electron source according to claim 5 wherein each of the extraction elements is connected to the same electrical potential as either of the extraction elements which are adjacent to it.
7. (previously presented) An electron source according to claim 5 wherein the controller connects the extraction elements to either side of an adjacent pair to the inhibiting potential while each of said adjacent pairs is connected to the extracting potential.
8. (previously presented) An electron source according to claim 7 wherein the controller connects all remaining extraction elements to the inhibiting potential while each of said adjacent pairs is connected to the extracting potential.
9. (previously presented) An electron source according to claim 3 wherein the extraction elements comprise parallel elongate members.

10. (canceled)
11. (previously presented) An electron source according to claim 1 wherein the extraction elements comprise wires.
12. (canceled)
13. (previously presented) An electron source according to claim 1 wherein the extraction elements are spaced from the electron emitter by a distance approximately equal to the distance between adjacent extraction elements.
14. (canceled)
15. (canceled)
16. (currently amended) An electron source according to claim 1-14 wherein the focusing elements are parallel to the extraction elements.
17. (previously presented) An electron source according to claim 16 wherein the focusing elements are aligned with the extraction elements such that electrons passing between any pair of the extraction elements will pass between a corresponding pair of focusing elements.
18. (previously presented) An electron source according to claim 17 wherein the focusing elements are spaced at equal intervals relative to the extraction elements.
19. (currently amended) An electron source according to claim 1-14 wherein the focusing elements are arranged to be connected to an electric potential which is positive with respect to the electron emitter.
20. (previously presented) An electron source according to claim 19 wherein the focusing elements are arranged to be connected to an electric potential which is negative with respect to the extraction elements.
21. (currently amended) An electron source according to claim 1-14 wherein the controller is arranged to control the potential applied to the focusing elements in order to control focusing of the beams of electrons.
22. (currently amended) An electron source according to claim 1-14 wherein the focusing elements comprise wires.
23. (canceled)
24. (previously presented) An electron source according to claim 4 wherein the extraction elements are spaced from the electron emitter such that if a group of one or more adjacent extraction elements are switched to the extracting potential, electrons will be extracted from a

length of the electron emitter which is longer than the width of the source regions defined by said extraction elements.

25. (previously presented) An electron source according to claim 24 wherein the extraction elements are spaced from the electron emitter by a distance which is at least substantially equal to the distance between adjacent extraction elements.

26. (previously presented) An electron source according to claim 24 wherein the extraction elements are spaced from the electron emitter by a distance of 5mm.

27. (canceled)

28. (previously presented) An electron source according to claim 24 wherein the extraction elements are arranged to at least partially focus the extracted electrons into a beam.

29. (previously presented) An electron source according to claim 1 wherein the source regions are formed on respective electron emitters which are electrically insulated from each other and the controller is arranged to vary the electric potential of the electron emitters to control said relative electric potentials.

30. (previously presented) An electron source according to claim 29 wherein the extraction elements are held at a constant potential.

31. (currently amended) An electron source according to claim 30 ~~wherein said further comprising~~ focusing elements are held at a constant potential.

32. (previously presented) An electron source according to claim 31 wherein the focusing elements are held at the same potential as the extraction elements.

33. (previously presented) An electron source according to claim 31 wherein each focusing element is spaced at a distance between and in front of each adjacent pair of electron emitters.

34. (previously presented) An electron source according to claim 1 wherein the controller activates each of the source regions in turn.

35. (previously presented) An electron source according to claim 1 wherein the controller controls the electric potentials of the source regions and the extraction elements to extract electrons from a plurality of successive groupings of said source regions.

36. (previously presented) An X-ray tube comprising the electron source of claim 1 and at least one anode.

37. (previously presented) The at least one anode according to claim 36 further comprising an elongate anode arranged such that beams of electrons produced by different extraction elements will hit different parts of the anode.

- 38. (cancelled)
- 39. (cancelled)
- 40. (cancelled)
- 41. (cancelled)
- 42. (cancelled)
- 43. (cancelled)
- 44. (cancelled)
- 45. (cancelled)
- 46. (cancelled)
- 47. (cancelled)
- 48. (cancelled)
- 49. (cancelled)
- 50. (cancelled)
- 51. (cancelled)
- 52. (cancelled)
- 53. (cancelled)
- 54. (previously presented) An electron source according to claim 29 wherein the electron emitter comprise emitter pads supported on an insulating emitter block.
- 55. (original) An electron source according to claim 54 further comprising a layer of conductive material formed on the insulating block to provide electrical connection to the emitter pads.
- 56. (original) An electron source according to claim 55 wherein the emitter pads are applied onto the layers of conductive material.
- 57. (previously presented) An electron source according to claim 54 further comprising a heating element adjacent to the emitter block.

58. (original) An electron source according to claim 57 wherein the heating element comprises a block of insulating material with a layer of conductive material applied to it forming a heating element.

59. (previously presented) An electron source according to claim 54 further comprising a connecting element providing electrical connections for each of the emitter pads and flexible connecting elements providing electrical connections between the connecting element and the emitter block.

60. (original) An electron source according to claim 59 wherein the connecting elements are arranged to accommodate relative movement of the connecting element and the emitter pad caused by thermal expansion.